Crayfish

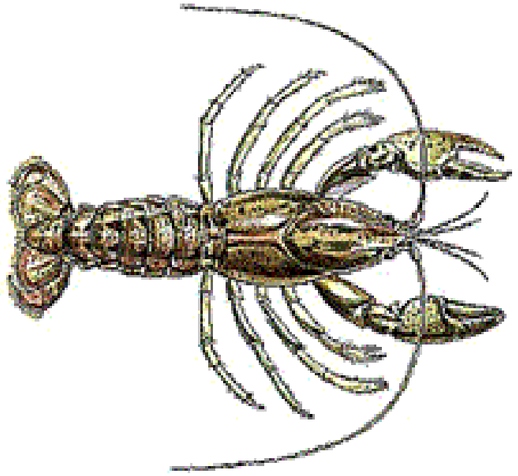
Indicators of Moderate Water Quality

(Group Two)

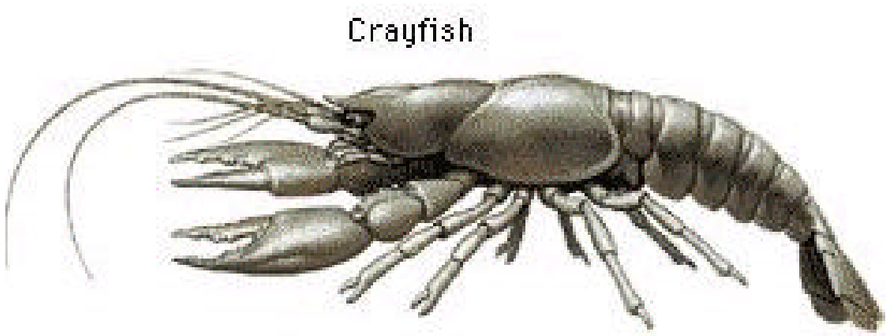
Decapoda (Crayfish)

- **Measure up to 6 inches in length**
- **Have 5 pairs of walking legs, the first pair with large pinchers**
- **Resembles a small lobster. Some crayfish are usually active only at night;**
- **: During the day they hide in burrows or under rocks.**
- **Crayfish are omnivorous, eating both plants and animals.**

Crayfish



Relative Size _____

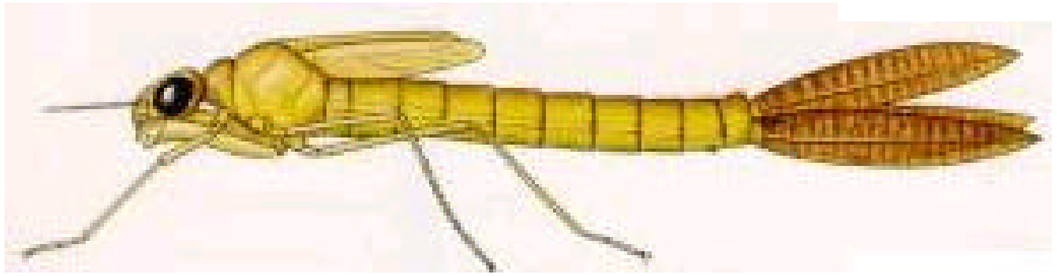


Damselflies

Indicators of <u>Moderate</u> Water Quality (Group Two)

Damselfly Nymph

Damselfly larva



Damselfly larva

Damselfly Nymph

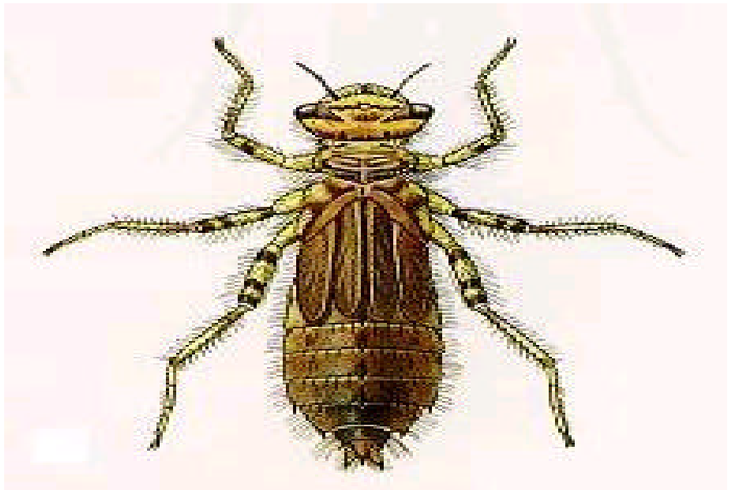
- **Measures between 0.5-2.0 inches in length.**
- **Nymph has large eyes,(or larva) two pairs of wing pads and a large round or oval abdomen.**
- **Abdomen terminates in three small pointed gills.**
- **Can be readily distinguished from other species by the presence of a large jaw, which is modified for grasping and covers the underside of the head.**
- **Prefers still water, often found among vegetation and leaf packs.**

Relative Size _____

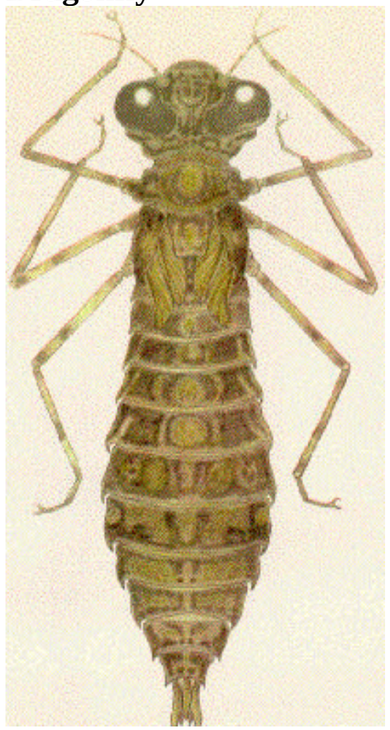
Damselfly larva

Dragonfly
Indicators of Moderate Water Quality (Group Two)

Dragonfly larva



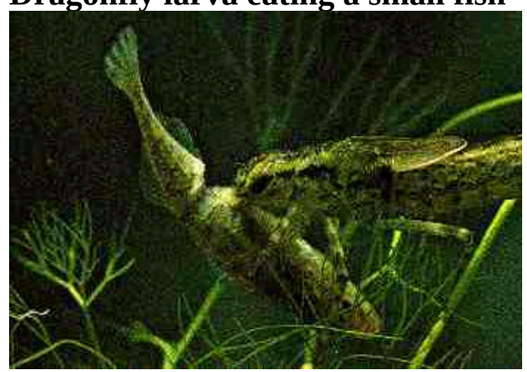
Dragonfly



- **Measures between 0.5-3.0 inches in length**
- **Large eyes**
- **Two pairs of wing pads**
- **Large round or oval abdomen**
- **Abdomen terminates in three small pointed structures**
- **Can be readily distinguished from other species by the presence of a large jaw which is modified for grasping and covers the underside of the head**
- **Prefer still water, often found among vegetation and leaf packs or burrowed in sediment**

Relative Size _____

Dragonfly larva eating a small fish

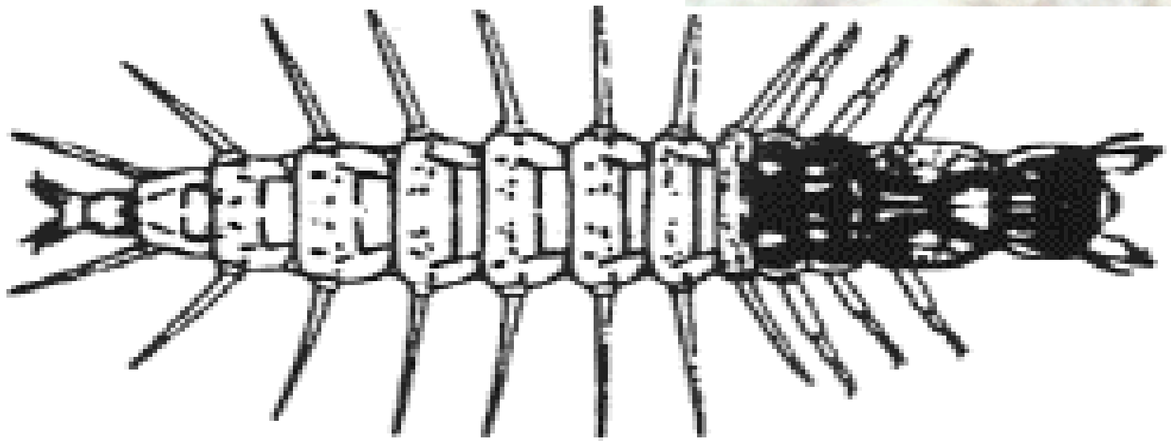


Fishflies

Indicators of <u>Moderate</u> Water Quality (Group Two)

Fishfly adult

Fishfly



- **Mouth has large, chewing pinchers**
- **Retractable breathing tubes extend from top of abdomen (not visible without magnification)**
- **Smooth underside**
- **Abdominal segments with many strand-like appendages extending from each side**
- **Three pairs of legs on middle section of body with tiny pinchers at the end of each**
- **Back end is forked with two short tails and two hooks on each tail**
- **Light colored**
- **Often confused with hellgramite (dobson fly larva) but does not have fluffy gills on underside**

Relative Size _____

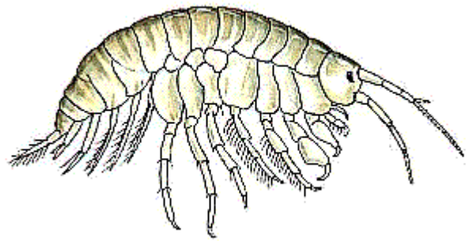
Fishfly larva

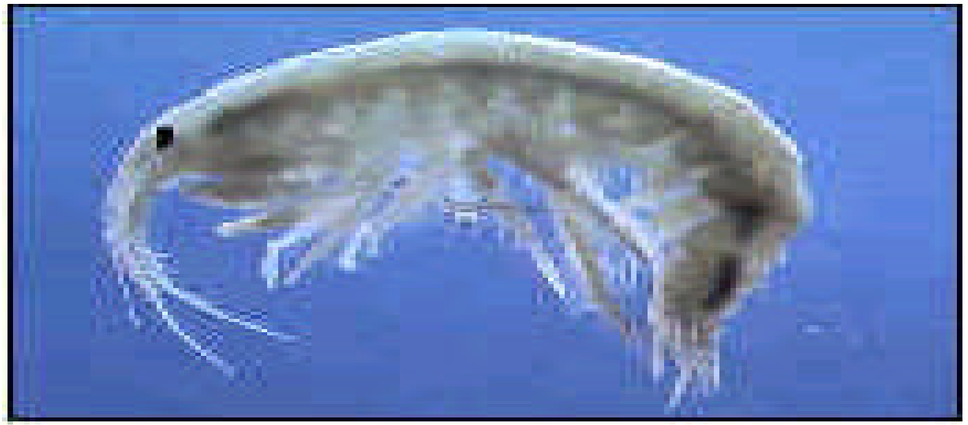
Scuds

Indicators of <u>Moderate</u> Water Quality (Group Two)

Scud

Scud





Scud

- **Measures 5-20 mm in length.**
- **Clear whitish to pink in color.**
- **Laterally flattened (top to bottom).**
- **Seven pairs of legs, the first two are modified for grasping.**
- **Found in shallow freshwater springs, streams, lakes and ponds.**
- **Most species feed on debris. Scuds are an important food source for many fishes.**

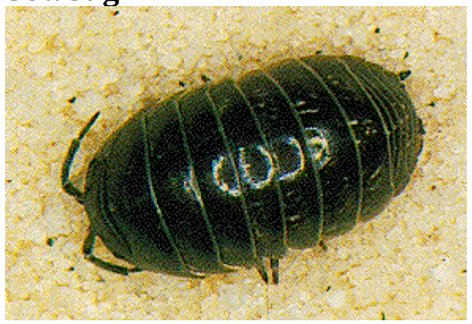
Relative Size ____

Scud

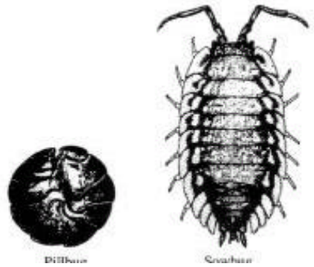
Sowbugs

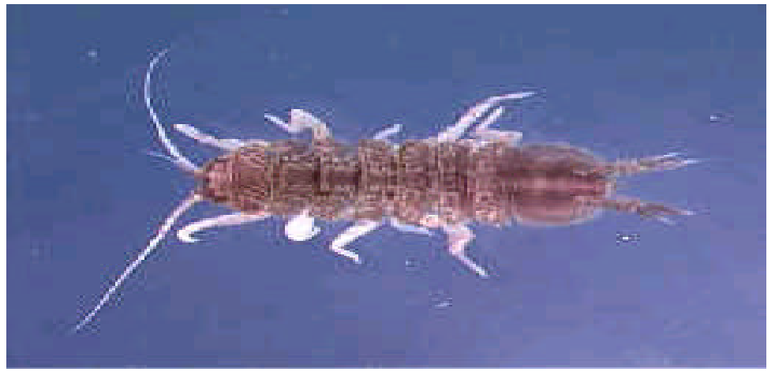
Indicators of <u>Moderate</u> Water Quality (Group Two).

Sowbug



Sowbug





SOWBUG (Class Crustacea, Order Isopoda)

- **Segmented, flat body**
- **Many legs**
- **dimension range: ¼”-1/2” Sowbugs are gray and segmented, with an "armored" appearance.**
- **They look very similar to terrestrial sowbugs, also known as pill bugs.**
- **They have a sort of rectangular shape and many small legs.**
- **Sowbugs are most easily found along the stream's edge.**

Sowbug

Relative Size ____

Watersnipe

Indicators of <u>Moderate</u> Water Quality (Group Two)

- **Carnivorous**
- **They can bite**

Watersnipe fly larva

Watersnipe Fly Larvae

- **Measure 12-18 mm in length.**
- **Color varies from pale to green.**
- **Abdomen has well-developed pairs of ventral prolegs and short dorsal and lateral filaments.**
- **Posterior pair of processes.**
- **Widespread in well oxygenated streams and rivers. Some species burrow in soft sediments.**

Relative Size _____

Atherix (watersnipe)

Aquatic Worms

Water Quality Indicators of <u>Poor</u> Water Quality (Group Three)

<u>Aquatic Earthworms</u>

<u>Aquatic Earthworms</u>

Aquatic Worm

- **They are either red, brown, or black.**
- **They have a circular, thin, segmented body**
- **They can possibly be up to five inches**
- **They often have short bristles or hairs that help them to move.**
- **(They are usually not visible to the human eye.)**

Aquatic Worm

- **Measure 1-30 mm in length, but sometimes over 100 mm.**
- **Clear whitish to pink in color.**
- **Body consists of 7 to 500 segments.**
- **Segments often have bristles or hairs.**
- **Tolerant of low dissolved oxygen concentrations.**
- **Found in silty substrates and among debris or detritus in pods, lakes, streams and rivers.**
- **Dense populations of aquatic worms can often be found in organically polluted rivers.**
- **Approximately 200 species in North America.**

Clumps of Tubifex Worms (Aquatic worm)

Relative size _____

Blackflies

Indicators of Poor Water Quality (Group Three)

Blackfly larva

- **Blackfly Larvae**
- **Measure to 1/2 inch in length**
- **Body cylindrical and widest at the posterior**
- **Abdomen terminates in an attachment disc**
- **Head usually possesses fan-like appendages**
- **Blackfly larvae prefer cold running water and are usually found attached by the end of their abdomens to rocks, woody debris, or vegetation in the currents of rivers and streams.**

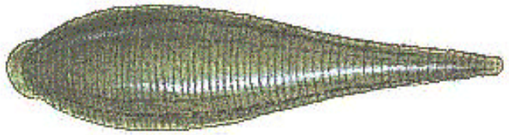
Blackfly larvae

Blackfly feeding on skin

Relative Size ____

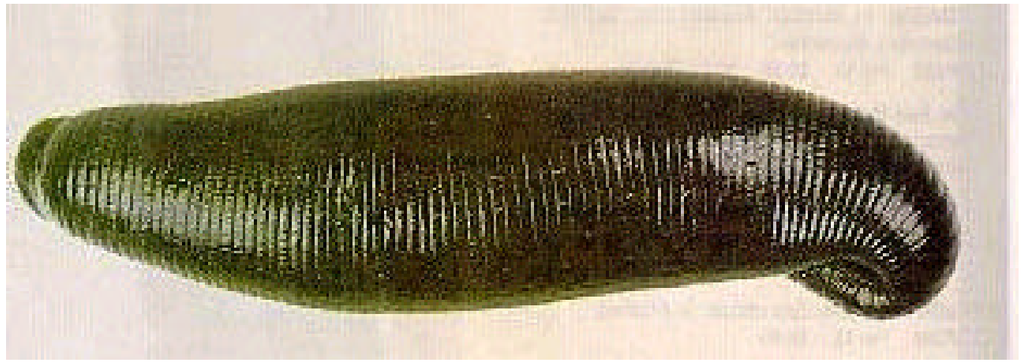
Leeches

Indicators of <u>Poor</u> Water Quality (Group Three)



Leech

Leech



Leech

Measures 1.0 mm to 5.0 cm in length. Typically flattened from the back to the belly. Always have 34 segments. Suckers at both ends. Leeches are common in warm protected waters of lakes, ponds, streams, and marshes. Leeches usually avoid light by hiding under rocks or among aquatic vegetation or detritus. Silty substrates are unsuitable for leeches because they cannot attach properly.

Relative Size ____

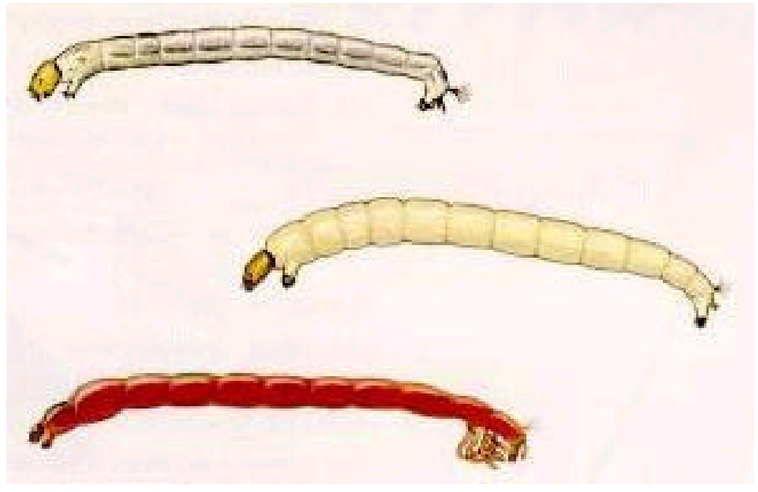
Leech

Midgeflies

Indicators of Poor Water Quality (Group Three)

Midgefly larvae

Midgefly larvae



Midge Larvae

- **Measures up to 1/2 inch in length**
- **Body small, cylindrical, and slightly curved**
- **Occasionally deep red in color, otherwise variously colored**
- **Two small prolegs just posterior to head**
- **Frequently found in bottom sediments of lakes, streams, and ponds where they feed on deposited organic material**

Midgefly adult

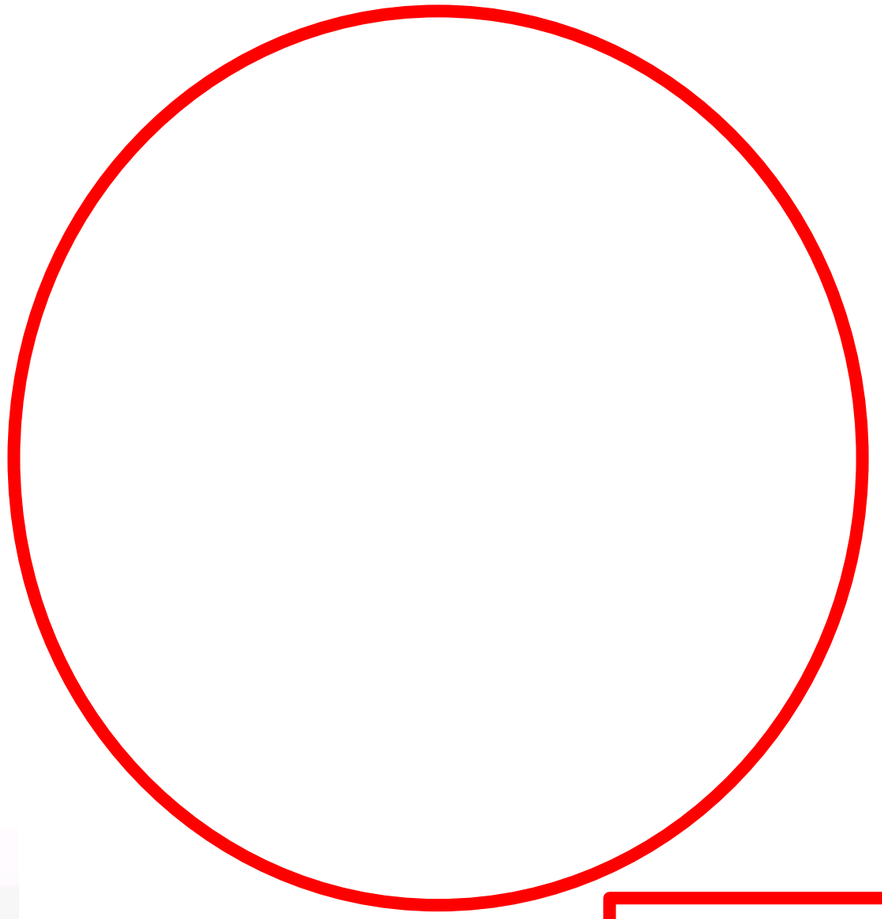
Relative Size __

Pouch Snails

Indicators of Poor Water Quality (Group Three)

Pouch snails

Pouch snail

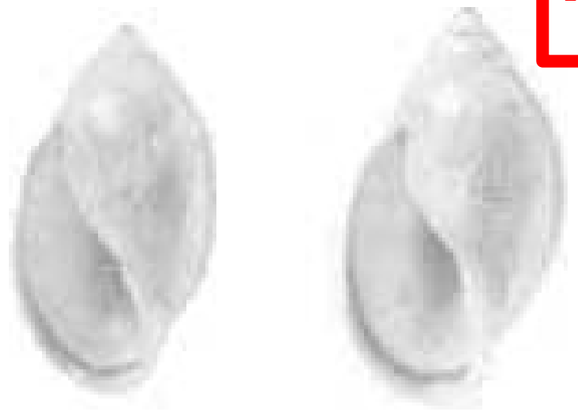


Relative Size ____

Pouch Snail

- **Shell opens to the left**
- **Presence of a fleshy "foot" indicates the snail is alive.**
- **Snails in this category can be distinguished from**
- **"other snails" by the opening of the shell.**
- **To identify a snail, hold it with the tip of the shell pointed**
- **up and the opening facing you (as pictured). If the opening is to the left side, you have a pouch snail.**
- ***Do not count empty shells.***

-



Pouch Snails

Other Snails(Including Gilled)

Indicators of Poor Water Quality (Group three)

Other snails (Class Gastropoda)

Snail

Relative Size ____

Other snails (Class Gastropoda)

- **Shell opens to the right.**
- **On most, a covering, called the operculum, indicates the snail is alive. If no operculum is present look for a fleshy "foot."**
- **Snails in this category can be distinguished from pouch snails by the opening of the shell.**
- **To identify a snail, hold it with the tip of the shell pointed up and the opening facing you (as pictured). If the opening is to the right side, you have a snail that falls in the "other snails" category, also referred to as the "gill-breathing" snails.**
- **Note: The flat, coiled snails also fall into this group.**
- Do not count empty shells**.**